

9. The method of claim 1 wherein the glass product is continuous strand fiberglass.

**REMARKS**

Claims 1-9 were originally filed. Claim 1 and claims 4-9 are pending in this application. Claim 1 and claims 4-9 are rejected. Claim 1 and claims 4-9 are now before Examiner. Applicant has amended the claims and restated his case in view of Examiners comments in the Advisory Action.

Applicant interviewed with Examiner September 18, 2002 at which time Examiner had agreed there was allowable subject matter. Applicant amended Claim 1 per Examiner's suggestion and also amended a typographical error in the calcium magnesium silicate formula. Examiner felt this was introducing new matter and finally rejected the application.

Applicant contends no new matter had been added to the Application. Based on the argument presented below and is supported in the Specification, Examiner will see no new matter was added to the Application and that the claims are allowable per the September 18, 2002 interview with Examiner.

Additionally, Applicant clarified Claim 1 by adding "second" in front of "amount of a magnesium oxide..." Support for including a "second" amount of magnesium oxide in Claim 1 can be found at page 4, line 23 of the specification.

**35 U.S.C. § 112, first paragraph**

Examiner states "Claim 1 was amended to include a chemical formula  $\text{Ca}_x\text{Mg}_y\text{SiO}_z$ . Specifically, the amendment also including amending the chemical formula by changing the letter following the "O" from "x" to "z". This is deemed to be new matter." Examiner noted that in the original specification and original Claim 3, the letter "z" was never present and that the description of "z" as being the value to balance the oxidation state of the compound is not

sufficient to support it being placed after the "O" in the formula. Examiner continues with "z" could have been placed after either "Ca" or "Mg" in the formula and be defined as "the value to balance the oxidation state of the compound." The placement of "z" at any place in the formula will be deemed new matter."

Applicant contends that "z" can not be place after either "Ca" or "Mg." This was a typographical error and if the values given for x and y, "independently from about 0.1 to about 0.6," as disclosed on page 5, lines 7 and 8, are substituted into the formula makes clear that "z" can only be associated with the oxygen. For instance, if "x" is a subscript of Ca and "y" associated with Mg the reaction can be balanced by "z" being with the oxygen.

If "x" is a subscript of the oxygen and "y" is Mg then if "x" and "y" equal 0.6, there could be no calcium in the formula and if the value of "y" is reduced there can be no compound with a formula of  $\text{CaMgSiO}$ . Since "x" and "y" vary independently from about 0.1 to about 0.6, if "x" is greater than "y" then "z" would have to be negative. You can not have less than 0 in an empirical formula.

Examiner suggested that we could have also meant that the "z" was a subscript of Mg. This presents a similar case to the one outlined above except in this case if "y" is greater than "x", then "z" would have to be a negative number, and this is impossible.

Applicant's amendment is supported in the original Specification on page 4, lines 7-9. Mathematically, there is only one possible empirical formula disclosed by Applicant and that is if "x" and "y" are associated with the calcium and magnesium and "z" with the oxygen.

Although there was a typographical error in the empirical formula for  $\text{Ca}_x\text{Mg}_y\text{SiO}_z$  as originally filed, one of ordinary skill in the art would realize from the disclosure that the correct empirical formula can only be  $\text{Ca}_x\text{Mg}_y\text{SiO}_z$  based on the teaching that "the values of x and y are independently from about 0.1 to about 0.6 and z is a value to balance the oxidation state of the

compound (in the Specification, page 4, lines 7-8 and page 8, lines 14-15).

Therefore, Applicant contends no new matter has been added to the application because it is disclosed in the original specification and claims that "z" is a value to balance the oxidation state of calcium magnesium silicate (in the Specification, page 4, lines 7-8 and page 8, lines 14-15).

**35 U.S.C. § 112, second paragraph**

Examiner states "Claim 1 appears to be a vague listing of various elements in forming a glass batch and refers to "other glass components" which is deemed indefinite."

Applicant contends that one of ordinary skill in the art knows what components go into a borosilicate glass-making batch. Examiner referenced in a previous office action, dated July 2, 2002, Tooley, Handbook of Glass Manufacture Volume II, pp. 189, in which glass making components are listed, specifically, TABLE XIX A-III, under fiber glass, which contains  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{MgO}$ ,  $\text{Na}_2\text{O}$ ,  $\text{F}_2$ , and  $\text{B}_2\text{O}_3$ . Applicant teaches he replaces the calcium oxide, boron oxide and magnesium oxide compounds with a calcium magnesium silicate. One of ordinary skill in the art would understand "other" glass components would include the aluminum, iron, sodium, and fluorine compound found in borosilicate glass. Applicant exemplifies the replacement of a dolomitic lime, as the source of magnesium oxide, with an amount of calcium magnesium silicate. Again, Applicant is replacing calcium oxide and magnesium oxide of a glass composition with calcium magnesium silicate, which enables the reduction of the boron oxide component. The "other glass components" would be dependent upon the type of glass being produced.

Therefore, one of ordinary skill in the art of glass making would know what the "other glass components" would be and is not indefinite.

Examiner also noted "Claim 5 and claim 6 refer to "said second glass batch" and "said

comparative composition" lack antecedent basis.

Applicant has amended Claim 5 and Claim 6 to more clearly define that the glass batch of Claim 1 is being compared to a second glass batch of comparative composition. No new matter was added in the amendment as a "second" or "comparative" glass batch is disclosed in the Specification on page 4, lines 3-7, page 4, line 21 to page 5, line 2 and page 5, lines 12-18).

### CONCLUSION

Applicant has amended Claim 1 and has shown that no new matter has been added. Additionally, Applicant has amended Claim 5 and Claim 6 to be dependent upon Claim 4 instead of Claim 1, thereby eliminating antecedent basis rejections. Applicant has not changed the scope of Claim 5 and Claim 6 and believes that an additional search and further prosecution is unnecessary. As all rejections are overcome, all claims are believed to be in condition for allowance. An early notice to that effect would be appreciated.

No fees are believed due for the filing of this Amendment. However, please charge any fees that might be applicable to Minerals Technologies Inc. Deposit Account No. 13-3639.

Respectfully submitted,

7/22/03

Date

Michael J. Herman

Michael J. Herman

Registration No. 51, 289

Agent for Applicant

## Version With Markings Showing Changes Made

### In the Specification:

On Page 5, replace the second full paragraph with:

An advantage of the present invention is that the refining batch-free time of said formed glass batch is at least twenty-five percent less than that of a second glass batch of a comparative composition. A further advantage is that the temperature for refining of the formed glass batch using the present invention is at least 50 degrees [Centigrade] Celsius less than that required for a comparative composition using known methods to produced an equivalent batch-free time. In a preferred method the batch-free time is equivalent to or less than the batch-free time of an equivalent composition produced with less magnesium oxide. An alternative advantage is that the temperature for refining is equivalent to or less than the temperature for refining of an equivalent composition produced with less magnesium oxide. A preferred application is use of the present inventive method to produce a glass product, which is continuous strand fiberglass.

### In the Claims:

1. (Second Amendment) A method of producing a glass product comprising forming a glass batch by admixing an amount of a boron compound, an amount of a calcium magnesium silicate compound, wherein the calcium magnesium silicate has an empirical formula of  $\text{Ca}_x\text{Mg}_y\text{SiO}_z$ , and the values of x and y are independently from about 0.1 to about 0.6 and z is a value to balance the oxidation state of the compound, an optional second amount of a magnesium oxide compound, wherein the amount of said magnesium oxide compound is about zero, and an amount of other glass components to produce said formed glass batch; then melting and refining said formed glass batch to produce a glass composition; and finally forming from said glass composition a glass product.

4. The method of claim 1 wherein said formed glass product is composed of at least ten percent by weight less boron oxide than and has an equivalent surface property to a comparative glass product formed from a second glass batch produced by a method comprising admixing a second amount of a boron oxide compound, an optional second amount of a magnesium oxide compound, and a second amount of other glass components in the absence of an amount of said calcium magnesium silicate compound.
5. The method of claim 1 wherein the refining batch-free time of said formed glass batch is at least twenty-five percent less than that of [said] the second glass batch of [said] the comparative composition.
6. The method of claim 1 wherein the temperature for refining of said formed glass batch is at least 50 degrees [Centigrade] Celsius less than that required for [said] the comparative composition to produced an equivalent batch-free time.
7. The method of claim 4 wherein the batch-free time is equivalent to or less than the batch-free time of an equivalent composition produced with less magnesium oxide.
8. The method of claim 4 wherein the temperature for refining is equivalent to or less than the temperature for refining of an equivalent composition produced with less magnesium oxide.
9. The method of claim 1 wherein the glass product is continuous strand fiberglass.